Outcome of cold coagulation for the treatment of cervical intraepithelial neoplasia in a department of genitourinary medicine

Olwen E Williams, Margaret Bodha, A B Alawattegama

Abstract

***Objective*—To evaluate the outcome of "cold coagulation" as a treatment modality for major grade cervical pathology, cervical intraepithelial neoplasia (CIN 2 and 3) in a department of genitourinary medicine.**

***Design*—Prospective programme trial with 18 month follow-up of patients undergoing "cold coagulation" of the cervical transformation zone following colposcopic assessment and biopsy.**

***Setting*—A genitourinary medicine colposcopy clinic.**

***Patients*—125 female patients with histologically proven major cervical pathology (CIN 2 and 3). The mean age of the patients was 24·5 years; 73% were unmarried, 43% currently smoked and 62% had a history of exposure to the human papilloma virus.**

***Main outcome measures*—Eradication of cervical abnormality with cytological findings at 4, 8 and 12 months and colposcopy at 18 months, with intervention colposcopic assessment if follow-up cytology was abnormal.**

***Results*—Eradication of CIN was achieved in 96·5% of patients, the majority of treatment failures being detected at first cytology. Attendance for follow-up was good, with only a 16% default rate. Final colposcopy yielded five treatment failures. No major complications were noted.**

***Conclusion*—These results confirm that "cold coagulation" provides an acceptable, efficient and effective, low cost consumer friendly treatment for CIN 2 and CIN 3 in an out-patient genitourinary medicine colposcopy clinic.**

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University Department of Genitourinary Medicine, Royal Liverpool University Hospital, Liverpool L7 8XP
Olwen E Williams
Margaret Bodha
A B Alawattegama

Address for correspondence:
O E Williams
University Department of Genitourinary Medicine, Royal Liverpool University Hospital, Liverpool L7 8XP

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Introduction

Cold coagulation of the cervical transformation zone is known to be an effective treatment for all grades of cervical intraepithelial neoplasia.[1] It is associated with low morbidity and preservation of fertility. Financial outlay, maintenance and running costs of the equipment are significantly less than some other treatment modalities.

Of the 189 genitourinary medicine clinics in England and Wales, 60 provide a colposcopy service of which around 50% offer treatment, cold coagulation being the commonest method.[2]

The Department of Genitourinary Medicine (GUM) at the Royal Liverpool University Hospital set up a colposcopy service in 1985. Three years later it acquired a "Semm" cold coagulator, prior to which all women with CIN requiring treatment were referred to the Department of Gynaecology. There is now access to a laser, and a Lletz diathermy machine was acquired by the Department in September 1989.

This study was conducted after a preliminary report[3] concluded that cold coagulation should be a treatment modality in genitourinary medicine. It aims to show that the outcome of cold coagulation of the transformation zone for major cervical lesions (cervical intraepithelial neoplasia 2 and 3) used within a GUM colposcopy clinic is comparable with that of other specialities.

Patients and methods

All patients who attended the GUM outpatients clinic with abnormal cytology, genital warts or exposure to, herpes genitalis, and "suspicious" cervix between February 1988 and October 1989 were offered colposcopic examination of the cervix. They were counselled and given information sheets at the time of booking for colposcopy.

Colposcopy (with a Zeiss OPM I-1) was performed as described elsewhere.[4] The squamo-columnar junction was identified in its entirety and biopsy specimens were taken from aceto-white areas with punch biopsy forceps. The specimens were fixed in formalin. The patient was advised to return to the clinic after six weeks. Subsequent management depended on the histology, fulfilment of criteria for out-patient ablative therapy and patients suitability for cold coagulation.

Cold coagulation was performed at 100°C, with overlapping applications each lasting 20 seconds, to the entire transformation zone and inner canal. No analgesia was used. "Sultrin" vaginal cream was prescribed for 1 week after treatment.

Post treatment follow-up cytology was initially performed at 4, 8 and 12 months. A revised cytological follow-up policy was instigated in January 1989, with smears taken at 6 and 12 months respectively. Final colposcopic assessment was performed at 18 months.

Intervention, in the form of re-colposcopy was performed if cytology on two occasions

Table 1 Attendances for follow-up cytology and colposcopy post-cold coagulation

	n = total no. patients due to attend	*Attended*	*Due to attend*	*Defaulted*	*Withdrawn* from study*
1st visit	n = 125	116 (92·8%)	9 (7·2%)	0	4
2nd visit	n = 112	96 (85·7%)	10 (8·9%)	6	1
3rd visit	n = 95	64 (67·36%)	5 (5·26%)‡	26†	0
Colposcopy	n = 90	70 (77·8%)	8 (8·8%)	12	0

*The patients withdrawn from the study were definitive treatment failures who underwent excisional therapy.
†Change of policy on interval cytology led to this figure being high.
‡Several women defaulted 2nd cytology, but attended final colposcopy.

showed mild dyskaryosis or, on one occasion, moderate dyskaryosis or greater. If this assessment revealed a normal transformation zone, the patient was returned to the study programme. Treatment failure was defined as persistence of cervical intraepithelial neoplasia necessitating further treatment.

Of the 1,410 patients colposcoped during the study period, 380 underwent cold coagulation for histologically proven CIN. One hundred and twenty five (32·8%) had CIN 2 and 3 lesions—89 CIN 2 and 36 CIN 3. This group was evaluated. No cases of reconfirmed microinvasions were treated by this method.

Patients and characteristics

The majority of women were young (mean age 24·5 years, range 16–46) and 73% single. Their average age of first sexual intercourse was 17·7 years, range 14–25 years. Thirty per cent were parous; 43% currently smoked. Exposure to human papilloma virus had occurred in 62%. A sexually transmitted disease infection was diagnosed in 27%.

The contraceptive method favoured by this group was the oral contraceptive (53%), with 25% using sheaths, 5·6% the IUCD; 1·6% had been sterilised and 0·9% used the diaphragm. A quarter of patients were not using any method of contraception. Several patients had started using sheaths after exposure to human papilloma virus.

Abnormal cytology had been obtained in 97 (77·6%) cases; these were two borderline, six inflammatory, 48 mild dyskaryosis, 30 moderate dyskaryosis and 11 severe dyskaryosis. Negative cytology was obtained in 25 cases, whilst three had no pre-colposcopy cytology.

Table 2 Outcome of cytological follow-up (percentage in parenthesis)

Visit	*Cytology*	*Negative*	*Mild Dyskaryosis*	*Moderate/Severe Dyskaryosis*
1st	n = 116	88 (75·86)	19 (16·37)	9 (7·75)
2nd	n = 96	90 (93·75)	4 (4·1)	2 (2·08)
3rd	n = 64	61 (95·31)	1 (1·56)	2 (3·13)

Table 3 Outcome of intervention colposcopy/laser cone (n = 11)

		Histology			
Visit	*Cytology*	*Negative*	*CIN1*	*CIN2*	*CIN3*
	Dyskaryosis				
1	mild n = 1*	—	—	—	—
	moderate n = 6	2	2	2	—
	severe n = 1	—	—	—	1
2	mild n = 2*	1	—	—	1
	moderate n = 1	1	—	—	—
	severe n = 0	—	—	—	—
3	mild n = 0	—	—	—	—
	moderate n = 1	—	—	1	—
	severe n = 0	—	—	—	—

*one patient had two mild dyskaryotic smears prior to intervention colposcopy.

Results

Attendance for follow-up cytology was excellent, 92·8% for first visit, 85·7% second visit and 67·36% final visit. Eleven women were lost to follow-up and twelve were followed up by other agencies. Overall, there was a 16·26% default rate (table 1).

Results of cytological follow-up

The majority of abnormal cytology (24·13%) was diagnosed at first cytological assessment. The incidence decreased at later cytology, a phenomenon described in other studies (table 2). The instigating factor to change cytological follow-up from 4 and 8 months to 6 months and 1 year, was a high percentage of cytological reports that queried underlying mild dyskaryosis in an inflammatory smear. Of the 19 mild dyskaryotic smears obtained at first follow-up cytology, 18 reverted to normal at second cytology. It was felt that this represented reactive changes occurring during the healing process which needed greater than 4 months to complete. The policy led to a diminution of abnormal first cytology.

Outcome of abnormal follow-up cytology

Eleven of the 125 women had abnormal follow-up cytology which necessitated intervention colposcopy (moderate dyskaryosis, severe dyskaryosis or two mildly dyskaryotic smears). Seven at first cytology, three at second and one at final cytology. Confirmation of cytological abnormality by colposcopic biopsy of abnormal transformation zone was obtained in seven patients (table 3). Five patients within this group subsequently underwent further treatment in the form of laser conisation. Two patients declined further treatment and continued with cytological and colposcopic surveillance. The four patients with negative punch biopsies have subsequently had a further negative cytology and colposcopy.

Results of final colposcopy

Seventy patients had completed the eighteen month programme. At colposcopy, 55 patients had normal transformation zones, and were advised to continue with regular cytological assessments on an annual basis. Abnormal transformation zones were observed in twelve patients, three patients had no evidence of CIN on cervical biopsy, whilst nine patients had CIN 1. Excision of

Table 4 Outline of definitive treatment failures and successes in percentages

	Failure	*Success*
1st visit	6·04%	93·96%
2nd visit	3·12%	96·9%
3rd visit	1·5%	98·5%
Overall	3·5%	96·5%

the abnormal transformation zone was performed on five patients in this group, all of whom had CIN 2 on histology of cone specimen. Four women opted for surveillance as opposed to treatment, two of whom have had a subsequent negative cytological smear and colposcopy. Unsatisfactory final colposcopy occurred in four patients due to "pin hole" cervical os.

Overall, there were six (8·45%) unsatisfactory colposcopic examinations, two in the "intervention" group; both of these patients underwent excision procedures.

Discussion

Primary success rate overall was 96·5% (table 4) which correlated well with other studies.[5]

No adverse effects were witnessed in either the short or long term. However, a proportion of women subsequently commented that they had experienced discomfort during treatment. Six women had subsequently had normal pregnancies and uncomplicated vaginal deliveries.

Attendance for follow-up was excellent, despite the lack of a formal computerised recall system. It was felt that this was partly patient motivation, but reviewing all case sheets for this group and recalling non-attenders did play a part in achieving an overall 83·7% attendance.

The value of final colposcopic examination is equivocal. The pick-up rate of abnormalities in this series was 7·04% (5 cases) and were of a minor degree of CIN. No microinvasive or glandular disease had become apparent in this series.

Many women expressed anxiety over the length of follow-up especially when it culminated in a colposcopic examination. In contrast, a proportion of women valued the reassurance of a normal final colposcopy.

As a majority of treatment failures were picked up early, we feel that follow-up colposcopy should be performed within a year of treatment with subsequent annual cytological follow-up for 5 years, and then according to the national screening programme.

Long-term follow-up of patients with CIN treated by cold coagulation have shown it to be effective and associated with a low incidence of complications.[5] However, some clinicians have reported microinvasive disease of the cervic after ablative therapy.[6] This has led to excisional modalities, such as large loop excision of the transformation zone gaining popularity.[7] There are, however, no long term studies evaluating the use of excisional methods, nor have there been any randomised prospective studies comparing ablative and excisional methods.

For the genitourinary physician setting up a therapeutic service, there are many factors to take into consideration, efficacy, efficiency, complications, cost, operator preference, and patient suitability. With the prevailing fashion for excision, ablation should not be disregarded.

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